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ARTIFICIAL INTELLIGENCE IN CREATIVE INDUSTRIES: COPYRIGHT AND PATENT IMPLICATIONS

- Tushar Tanwar[1]

Abstract

In today's advanced technology shrewdness, where the development of Artificial Intelligence (A.I.) systems is accelerating daily, it will take over a range of people's activities, which could include an essential part of their professions. These systems will inevitably produce incredible inventions without the help of humans. Intellectual property rights (I.P.R.) raised important, relevant questions in light of traditional concepts such as patents and copyrights. It led to several problems about how these inventions should be regulated. The Intellectual Property lawyers and their teams spend a lot of time understanding and applying the patent claims. For products or processes for which a claim is to be made, hours shall be devoted to examining and analysing novelty, utility and unobvious characteristics. This paper aims to explain the increasing scope of intellectual property laws and artificial intelligence (A.I.) and the unavoidable challenges that accompany them from a global point of view. Firstly, the chapter examines the extent of copyright and patent protection available for artificial intelligence technology. Then, it will move towards AI-assisted or future work developed by Artificial Intelligence, particularly under E.U. law. In addition, it addresses the issue of criminal responsibility for content created by such technologies and provides ideas on how to circumvent intellectual property rights.

Keywords: Artificial Intelligence, Copyright Law, Patent Law, AI-assisted work, Intellectual Property Rights

Introduction

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[1]Student at Fairfield Institute of Technology and Management (GGSIPU).

"Sometime early in this century, the intelligence of machines will exceed that of humans. Within a quarter of a century, machines will exhibit the full range of human intellect, emotions and skills, ranging from musical and other creative aptitudes to physical movement. They will claim to have feelings and, unlike today's virtual personalities, will be very convincing when they tell us so." – Ray Kurzweil (2009)[2]

Today's A.I. systems are growing exponentially, incorporating more advanced software. In the process, artificial intelligence-empowered systems have grown from simple calculations to producing poetry, artworks and other creative work that is far more complex. Artificial intelligence (Al) is increasingly navigating critical telecommunications, business and technology developments. Its application has been widespread in vast industries that have slammed almost all aspects of production. World Intellectual Property Organization (WIPO) has established a multi-stakeholder Forum to understand better intellectual property rights issues related to the growth of artificial intelligence demand across the economy and society, its considerable effect on creating, manufacturing and distributing economic and cultural goods and services.

Lately, though, it has become more scientific and less fiction. Rapid changes are taking place in the world of technology, and artificial intelligence is making considerable progress. When sophisticated technology is incorporated into this system, it will only be a subject of time before such systems build unique creations without human intervention. Artificial intelligence means a machine can follow any intelligent behavior. The paper begins by explaining the concept of Artificial Intelligence and then moves into a discourse on intellectual property that focuses mainly on I.P. Then, the paper will discuss copyright associated with A.I. solutions and note the relationship between patent law and A.I. systems. In doing so, the paper draws up the suggestion on these issues.

What is Artificial Intelligence?

Artificial intelligence has a variety of definitions. Artificial intelligence is a branch of computer science dedicated to developing machines and systems that can carry out tasks that would need

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[2]Ray Kurzweil, "The Coming Merging of Mind and Machine", (Scientific American, 23 March 2009), https://www.scientificamerican.com/article/merging-of-mind-and-machine/ accessed 19 September 2023.

the mental capacity of humans. A.I. is split into two subsets: Machine Learning and Deep Learning. As neural network techniques and hardware have been developed over the last few years, Artificial Intelligence is often used as a term for "Deep Supervised Machine Learning". This ability of the computer system to rule on its own has been commonly referred to as artificial intelligence.[3] In 1956, at a conference organised by a computer scientist named John McCarthy, an official term was put forward for 'artificial intelligence'.[4] All professionals can accept no proper set of definitions for artificial intelligence. Some describe A.I. as a computerised machine. Systems are defined by their behaviour as systems capable of solving complex problems with reasonable solutions or taking appropriate measures for achieving their objectives in the actual world context, which is generally considered to require intelligence and others.[5] The existence of artificial intelligence has been confirmed by the World Intellectual Property Organisation (WIPO), with three kinds of intelligent systems, i.e. expert systems, perception and natural language systems being classified as AI.[6]

In 2016, a short novel written by the Japanese computer program named *"The Day a computer writes a Novel or konpyuta ga shosetsu wo kaku hi"* in Japanese appeared in the second round of national prizes for literature.[7] And Google Inc.'s Deep Mind, an artificial intelligence company, has come up with software for generating Music through listening to recorded sounds.[8]

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[3]Swapnil Tripathi and Chandni Ghatak, 'Artificial Intelligence and Intellectual Property Law', (2018), Vol.7No.1, 83-97, ISSN 2278-4332X, https://doi.org/10.12728/culj.12.5 accessed 19 September 2023.

[4]Dr. A. Lakshminath and Dr. Mukund Sarda, 'Digital Revolution and Artificial Intelligence- Challenges to Legal Education and Legal Research', (2011-2012), CNLU LJ (2), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2713631 accessed 19 September 2023.

[5]Kalyan Revella, 'Intelligent Trademark- "Is Artificial Collides with the Trademark Law", (2021), Vol 1 Issue 5, I.P.R. Newsletter, https://ipindia.gov.in/writereaddata/Portal/Images/pdf/AugIPR.pdf accessed 20 September 2023.

[6]Pooja Unnikrishnan, 'Legal Implication of Artificial Intelligence Relating to Content Creation and Content Ownership' (2020), Vol.3 Issue 2; 473, ISSN 2581-9453, https://www.ijlsi.com/wp-content/uploads/Legal-Implications-of-Artificial-Intelligence-Relating-to-Content-Creation-and-Content-Ownership.pdf accessed 20 September 2023.

[7]Chloe Olewitz, 'A Japanese A.I. Program just wrote a short novel, and it's almost won a literary prize', (Digital Trends, 23 March 2016) https://www.digitaltrends.com/cool-tech/japanese-ai-writes-novel-passes-first-round-nationl-literary-prize/ accessed 20 September 2023.

[8]Devin Coldewey, 'Google's walnut uses neural nets to generate eerily convincing speech and music', (Tech Crunch, 10 September 2016) https://techcrunch.com/2016/09/09/googles-wavenet-uses-neural-nets-to-generate-eerily-convincing-speech-and-music/ accessed 20 September 2023.

Countries worldwide are investing to increase the use of artificial intelligence and its applications to promote A.I. research and development. An example is an augmented reality visual recognition company which has been established in Silicon Valley by an Indian entrepreneur who recently received funding from the Strategic Investment Fund of Malaysia.[9] National A.I. strategies are being developed continuously by the U.S.A., Europe, Canada, China and several other countries that require significant government expenditure in artificial intelligence. Global investments in A.I. start-ups continued to rise consistently, growing from $1.3 billion in 2010 to more than $40.4 billion in 2018, a growth rate of over 48% annually.[10] This is proof that artificial intelligence's mediation in mechanical and monetary development is unavoidable and has adequate government backing since artificial intelligence applications are the new age option in contrast to ordinary human advancement.

The Path of Copyright in AI

Copyright is an essential piece of licensed innovation privileges. This is a legal right conferred on the original author, giving him sole rights to use and distribute his work. The idea that the author was the originator of the theory of possessive individualism merged with Locke's economic theory of possessive individualism[11] was the reason and justification for this. In general, two key elements must be fulfilled to grant a copyright. First, the work shall be physical; second, it must be unique and authentic.

The impact of copyright law on creating works using artificial intelligence could be significant. Traditionally, because software was primarily a tool for supporting the artistic process as much as a pencil and paper, the title of possession of copyright in computer works did not come into question. Where an artist's work is unique, with the overwhelming majority of definitions of originality requiring a person author, it may be copyrightable. The majority of the jurisdictions,

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[9]Arjun Kharpal, 'App that recognises objects with A.I. raises $54M', (CNBC, 2 March 2016) https://www.cnbc.com/2016/03/02/blippar-app-that-recognizes-objects-with-artificial-intelligence-raises-54-million.html accessed 21 September 2023.

[10]Covington & Burling L.L.P., '10 Best Practice for Artificial Intelligence Related Intellectual Property, (Lexology, 4 June 2020) https://www.lexology.com/library/detail.aspx?g=7eb7e695-4712-4b46-b876-4a48b55d53ad accessed 22 September 2023.

[11]Diane Leenheer Zimmerman, 'It's an Original(?): In Pursuit of Copyright's Elusive Essence', (2005), 28 Colum. J.L. & Arts 187 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=601344 accessed 23 September 2023.

in particular Spain and Germany, shape that only the work which is constructed by human beings is entitled to copyright protection.[12] However, the computer program is no longer a tool; with the latest types of artificial intelligence, it makes many decisions about creative projects without human intervention. It becomes more difficult to clarify who made the arrangements required to develop the work when A.I. develops to the point where it is autonomous and has the freedom to make its own decisions. According to the present scenario, copyright protection may be enjoyed exclusively by human authors of artistic works.

Most jurisdictions have yet to accept extending intellectual property rights to artificial intelligence systems. In the case of *Feist Publications v Rural Telephone Service Company, Inc.[13]*, the U.S. Supreme Court ruled that copyright laws protect only works involving the intellectual and creative abilities of a person. Similarly, in the case of Acohs Pty Ltd.[14], an Australian court ruled that the copyright does not apply to works created by computer-intervention because they do not bear any form of human authorship.

- **Copyright Protected Works and Originality**

Works may be assessed for copyright protection in a wide variety of ways. Berne Convention Article 2 sets out a list of literary and artworks generally considered protected by copyright. This includes music compositions, theatrical works, books, choreography, architecture, film, etc. All of them have their roots in literature, science and art. As it currently stands, artificial intelligence systems can make such an artistic work.

However, a copyright-protected work must also include the author's specific and original expression. By E.U. case law, only copyright may protect a work if it represents an author's creation. Two elements are included in this originality standard:

1. That the work should be original and not copied and
2. That the work or invention should be presented as an intellectual creation.

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[12]https://www.wipo.int/copyright/en/ accessed 23 September 2023.
[13]Feist Publication, Inc. v. Rural Telephone Services Co., (1991) 499 U.S. 340.
[14]Acohs Pty Ltd. v. Ucorp Pty Ltd., 2012 FCAFC 16.

The human creative choices differ significantly from the way machines work. According to Anna Shtefan[15], computers do purely mechanical and determinative work based on information entered into their systems and programmed functions. It does not generate an outcome Without previous data on the corresponding object. It is very different from the creative works of people who create Music or choreography by inner stimulus and without prior training; "A.I. cannot sense emotions, a need to express oneself," which is the essence of creativity. Finally, A.I. systems as machines cannot make creative choices that lead to the output they create in copyright protection.

- **The Impact of A.I. on Copyright Law**

In many ways, A.I. has become a tool for creating new forms of artistic expression. Some examples can be found here:

- *Generative A.I.*

The category of artificial intelligence that allows for creating new content, such as text, images and Music, is generative A.I.. It can create new art forms, such as paintings or sculptures inspired by artificial intelligence. It is also being used to create new forms of Music, like songs and albums made based on artificial intelligence.[16]

- *AI-Assisted Creativity*

Artificial intelligence may also be used for human creativity. For example, artificial intelligence could assist artists in generating new ideas, finding inspiration and improving their work. In addition, A.I. could help musicians make new songs, compose music arrangements, and create musical masterpieces.[17]

- *AI-Driven Storytelling*

Creating new forms of storytelling can also benefit from artificial intelligence. In the example given below, A.I. can be used to build engaging stories, allowing users to select what effects they

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[15]David Tan, 'A.I. and Copyright: Death of the Author?', (Law Gazette, November 2022) https://lawgazette.com.sg/feature/ai-and-copyright-the-death-of-author/ accessed 25 September 2023.

[16]Jatin Solanki, 'Introduction to Generative A.I.: Use Cases and Applications', (Decube, 29 June 2023) https://www.decube.io/post/what-is-generative-ai accessed 28 September 2023.

[17]NantheeraAnantrasirichai& David Bull, 'Artificial Intelligence in the creative industries: a review', (2021), Artif intel Rev 55, 589-656 https://link.springer.com/article/10.1007/s10462-021-10039-7#citeas accessed 28 September 2023.

will have on a story. Virtual worlds, which let users explore the world in new ways, could also be created with artificial intelligence.[18]

The Path of Patent in AI

According to the World Intellectual Property Organisation's WIPO observation, about 40 % of patents on Artificial Intelligence are mainly composed of machine intellect, which is a crucial point of A.I. and related functional applications. The United States of America and China offices have the highest findings about A.I. patents. That would make it possible for these countries to experiment with the invention of artificial intelligence. Patents can be considered as a sole right in the case of inventions. It is understood that this invention also applies to all products and processes that provide a novel method of carrying out certain activities, including new solutions to existing technical problems. In order to obtain a patent, information about the invention shall be made publicly available when an application for a patent is submitted.[19] Today, AI-enabled systems can perform tasks based on their fundamental learnings, enabling them to create something new. This is a tremendous development on the technical side, but it also raises new problems for legal practitioners in terms of patent law.

- **The Impact of A.I. on Patent Law**

New patent search algorithms are being developed using Artificial Intelligence (A.I.) in several ways.

- *Natural Language Processing (N.L.P.)*

It shall be applied to identify and extract relevant information in patent documents. This will include recognising the characteristics of keywords and concepts necessary to a specific query and understanding their relationship.[20]

- *Machine Learning (ML)*

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[18]JeevineeVb, 'How Generative A.I. Transform the Craft of Narration', (Analytics Vidhya, 19 September 2023) https://www.analyticsvidhya.com/blog/2023/09/how-generative-ai-transforms-the-craft-of-narration/ accessed 28 September 2023.

[19]https://www.wipo.int/patents/en/ accessed 25 September 2023.

[20]Lee Mackey, 'Patent Language Processing', (Medium, 29 April 2019) https://medium.com/@glmack/patent-language-processing-fc99b57c0cd5 accessed 28 September 2023.

It is being used for training algorithms to detect patterns in patent documents. It can also be used to detect similar patents, predict the likelihood that infringement is likely and assess new inventions' novelty.[21]

- *Deep Learning*

In particular, this type of machine learning is very well suited to processing natural languages. Deep learning algorithms may be trained on many patent documents to identify and extract pertinent information.

1. Here A few examples of companies that are using A.I. for the development of new patent search algorithms are given below:

- **Integrator** uses Artificial Intelligence to develop patent search and analysis tools.
- **Ambercite** is an organisation using artificial intelligence to identify similar patents and evaluate the novelty of new inventions.
- **PatSnap** is a company that uses artificial intelligence to provide Life Sciences Companies with tools to search and analyse patents.

- **Patent and Current Law**

According to U.S. law, the individual or a group of individuals who come up with an invention or discover its subject matter are considered inventors. The intention of the United States to use A.I. inventions for patents is eliminated by this definition. However, efforts are being made by the European Union to make national legislation more comprehensive to cover copyrightable work composed from computers and other mechanical instruments under a classification of own intellectual creations. However, no action is taken concerning artificial intelligence and robot patents.

By law, the owner of that right has an entitlement to a limited period at which other persons are not permitted to manufacture, sell or use patented inventions. Consequently, it is shown that the creation of a monopoly for the benefit of the original inventor was justified by an inherent right

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[21]Wen Xie, 'How to Patent Artificial Intelligence And Machine Learning Models', (Forbes, 29 August 2022), https://www.forbes.com/sites/forbesbusinesscouncil/2022/08/29/how-to-patent-artificial-intelligence-and-machine-learning-models/?sh=545e5d37539a accessed 28 September 2023.

to guarantee on this occasion. It has been observed before that systems that use artificial intelligence shall be able to perform tasks and even produce inventions, which are usually produced as a result of the way people operate their minds. Indeed, these machines produce the results, and as a patentable invention, they could qualify.[22]

There are no provisions in the United Kingdom concerning patents for intellectual property created by artificial intelligence programs. In a case where a patent application was filed in UKIPO and DABUS (patented A.I. system) developed by Dr Stephen Thaler (also called the 'creativity Machine) was called the inventor.[23] The United Kingdom Intellectual Property Office refused the application, alleged that DABUS was a machine, not a natural person, and therefore the finding of DABUS would not be taken into account. Under U.K. law, the originator must be a human, and the hearing officer found that no law allowed ownership of an invention to pass from an A.I. inventor to an A.I. owner. In addition, he found that the invention of artificial intelligence cannot have been attributed to its inventor in this case. That is why there remains a lack of clarity on this case.

If Artificial Intelligence Owns Intellectual Property Rights

The I.P. system will not be challenged regarding who should be called an inventor or author once A.I. technologies or machine tools are used to solve a problem. Generally speaking, the creator is the person who conceives of the invention intelligently and creatively; the founder of the copyrighted work is the person who makes free and creative choices about the work. Questions will be raised about infringement in cases where artificial intelligence is a legitimate owner of inventions or intellectual property.

- Firstly, liability arises when an artificial intelligence infringes a third party's rights. It is more accessible for an A.I. to copy the author's work if all works can be found online,

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[22]Liza Vertinsky& Todd M. Rice, 'Thinking About Thinking Machines: Implications of Machine Inventors for Patent Law, (2002) B.U.J. S.C.I. & TECH. L. https://www.bu.edu/law/journals-archive/scitech/volume82/vertinsky%26rice.pdf accessed 26 September 2023.

[23]Douglas R. Nemec & Laura M. Rann, 'A.I. and Patent Law: Balancing Innovation and Inventorship', (Skadden, April 2023), https://www.skadden.com/insights/publications/2023/04/quarterly-insights/ai-and-patent-law accessed 25 September 2023.

simplifying the problem of proving that the infringer has access to a protected work. The Berne Convention does not furnish the definition of the author, but the text and the historical background strongly suggest that the author of a creative work is a natural person.[24]

- Secondly, the position of artificial intelligence in the production or invention of a work should be equivalent to that of an individual. In that case, entering into infringements and prosecution is also appropriate. A.I. software should also be liable for infringement and may enter into legal agreements that are not feasible or appropriate. This means that A.I. does not have to be a legally established entity.

- Thirdly, there is a concern that A.I. systems need to be more transparent regarding their ownership of intellectual property rights. This could make it more difficult for the transparency of A.I. systems to be achieved if circumstances arise where trade secrets protect A.I. systems. As time passes, transparency and accountability in decision-making processes become increasingly important.

Conclusion

Patenting an artificial intelligence invention is a complex process that goes from subject matter to creative steps towards ownership and ends with the separate determination of each criterion. Several countries and organisations have given special instructions on patenting artificial intelligence, but many more are still to do so. The use of A.I. systems significantly influence the I.P. system. It is not just A.I. tools that facilitate the I.P. rights search, examination, administration and enforcement; more significantly, they may also be protected with copyrights or patents for inventions they created. This protection can promote their further development. To keep up with artificial intelligence, which is constantly evolving, the existing I.P. legislation needs to be significantly improved. In this way, if we do not upgrade them, A.I. will continue to become more sophisticated at a time when our existing laws are unable to fulfil human needs.

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[24]Hugenholtz, P.B., & Quintais, J.P., 'Copyright and Artificial Creation: Does E.U. Copyright Law Protect A.I.-Assisted Output? (2021), IIC 52(9) 1190-1216, https://pure.uva.nl/ws/files/65585680/Hugenholtz_Quintais2021_Article_CopyrightAndArtificialCreation.pdf accessed 26 September 2023.

The current situation of A.I. within the I.P. poses a challenge since recognising works produced by A.I. is an essential step towards the future. However, it also presents severe problems in terms of implementation. To help with this, the authors provide the following recommendations.

A Uniform Recognition for A.I.

Despite the existence of A.I. worldwide, only a few countries like the U.S.[25], England, and New Zealand have recognised it.[26] This could be a positive step towards recognition of A.I.s in multilateral trade forums by all Member States. For example, it will be recognised using an amendment to the TRIPS Treaty.

The passing of the AI Data Protection Act

Artificial intelligence is currently performing human-like functions in every domain. It would not be funny if they could function more wisely than individuals tomorrow and decide independently. To keep a record of this, drafting legislation on artificial intelligence is necessary. Under the AI Data Protection Act (AIDPA), it is possible to provide remedies that an A.I. may provide to its human operators concerning criminal and civil offences. To investigate whether any infringement has occurred, the Act might provide for a regulatory framework to govern and adjudicate the actions relating to artificial intelligence.

Fixing the Lacunae in Criminal Obligation of A.I.s' Activities

The creator of these A.I.s is now copyrighting their actions. In addition, the creator, who may not have been aware of the A.I.'s actions, would also be liable if any criminal liability arose. It is necessary to fix such a gap so that an A.I. can be accorded specific sanctions, e.g. by destroying it or prohibiting its use with the technology which created it from being used. This would be the primary step in ensuring that innocent creators who do not have control over A.I.'sbehaviour are prevented from being punished.

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[25]Annemarie Bridy, 'Coding Creativity: Copyright and the Artificially Intelligent Author', (2012) Stanford Technology Law Review, Vol.5 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1888622 accessed 28 September 2023.

[26]Copyright, Designs and Patents Act, § 178, 1988 (U.K.); Copyright Act, § 2, 1994 (New Zealand).